

Applicant: Hruby *et al.*  
For: MULTI-FUNCTIONAL POWER SUPPLY FOR A HALL THRUSTER

ABSTRACT OF DISCLOSURE

5           A multi-functional power supply system for a Hall thruster including a thruster  
assembly for providing a plasma discharge and a cathode assembly for providing  
electrons. The cathode assembly includes an emitter, a keeper with a current limiting  
device, and a heater. A magnetic field source is operatively associated with the cathode  
assembly for generating a magnetic field to control the discharge. A plasma discharge  
10       circuit creates a plasma and accelerates the plasma to produce thrust. A power supply is  
connected to the keeper and the plasma discharge circuit and is connected to the heater  
through a switching device responsive to a predetermined condition for interrupting the  
power to the heater and simultaneously enabling the power supply to deliver power to the  
keeper and the plasma discharge circuit to initiate production of thrust.